

REMARKS

Status of the Claims

Claims 1, 3-5, 14, and 16-23 are pending, with claims 1 and 23 being independent. Claims 1 and 23 have been amended to even more clearly recite and distinctly claim particularly preferred embodiments of the present invention. Support for the amendments may be found throughout the specification, including in the original claims. Therefore, no new matter has been added. Claim 15 has been canceled without disclaimer of or prejudice to the subject matter contained therein.

Applicants respectfully request the Examiner to reconsider and withdraw the outstanding rejections in view of the following remarks.

Claim Rejections Under 35 U.S.C. § 102

Claims 1, 3-5, and 14-16 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 3,373,180 ("Glass"). Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed.

Glass relates to a method for removal of ***iron carbonyl impurities*** from fluid streams. (Column 1, Lines 9-12). Glass discloses that the fluid stream from which iron carbonyl impurities are to be removed may be a product of a Fischer-Tropsch synthesis. (Column 1, lines 24-23). Glass further discloses that the iron carbonyl impurities result from the ***iron present in the catalysts*** or the reactor system. (Column 1, Lines 15-19). In one embodiment, Glass discloses a process for the removal of ***iron carbonyl impurities*** from streams containing these iron carbonyls as impurities which comprises passing the stream through a resin bed, the resin bed having been prepared by replacing at least a portion of the replaceable cations in a cation exchange resin with ferric ions. (Column 1, Lines 54-60). Accordingly, it is respectfully submitted that Glass discloses conducting a Fischer-Tropsch synthesis with an iron catalyst with results in the iron carbonyl impurities present in the product.

In contrast, present independent claim 1 recites a method of removing contamination from a Fischer-Tropsch derived hydrocarbon stream comprising conducting a Fischer-Tropsch process using a ***catalyst comprising cobalt*** to produce a Fischer-Tropsch derived hydrocarbon

stream; passing the Fischer-Tropsch derived hydrocarbon stream to a treatment zone; providing an ion exchange medium comprising a crosslinked, ion exchanging polymeric resin within the treatment zone; contacting the Fischer-Tropsch derived hydrocarbon stream with the ion exchange medium within the treatment zone to remove **contamination comprising Al** from the Fischer-Tropsch derived hydrocarbon stream; and removing a purified stream from the treatment zone.

To anticipate a claimed invention under §102, a reference must teach each and every element of the claimed invention. *See Lindeman Maschinenfabrik GmbH v. American Hoist and Derrick Company*, 221 USPQ 481, 485 (Fed. Cir. 1984). It is respectfully submitted that in no way does Glass disclose or suggest the presently claimed process of claim 1.

It is respectfully submitted that in no way does Glass disclose or suggest the presently claimed method of removing contamination from a Fischer-Tropsch derived hydrocarbon stream comprising conducting a Fischer-Tropsch process using a **catalyst comprising cobalt** to produce a Fischer-Tropsch derived hydrocarbon stream. It is further respectfully submitted that in no way does Glass disclose or suggest passing the Fischer-Tropsch derived hydrocarbon stream to a treatment zone; providing an ion exchange medium comprising a crosslinked, ion exchanging polymeric resin within the treatment zone; contacting the Fischer-Tropsch derived hydrocarbon stream with the ion exchange medium within the treatment zone to remove **contamination comprising Al** from the Fischer-Tropsch derived hydrocarbon stream; and removing a purified stream from the treatment zone.

As Glass does not disclose each and every element of the claims, it cannot anticipate the presently claimed invention of claim 1 or claims dependent thereon. Accordingly, for at least the above reasons, withdrawal of the rejection under 35 U.S.C. § 102(b) is respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

Claims 17 and 18 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious in view of Glass. Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed. Claims 17 and 18 depend on claim 1 and further limit claim 1 by specifying how the contacting step is performed.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143.

As described above, Glass relates to a method for removal of *iron carbonyl impurities* from fluid streams. (Column 1, Lines 9-12). Glass discloses that the fluid stream from which iron carbonyl impurities are to be removed may be a product of a Fischer-Tropsch synthesis and these iron carbonyl impurities result from the *iron present in the catalysts* or the reactor system. Accordingly, it is respectfully submitted that Glass discloses conducting a Fischer-Tropsch synthesis with an iron catalyst with results in the iron carbonyl impurities present in the product.

Applicants respectfully submit that the presently claimed process is significantly different than the process of Glass. The presently claimed method for removing contamination from a Fischer-Tropsch derived hydrocarbon stream comprises conducting a Fischer-Tropsch process using a *catalyst comprising cobalt* to produce a Fischer-Tropsch derived hydrocarbon stream and contacting the Fischer-Tropsch derived hydrocarbon stream with an ion exchange medium comprising a crosslinked, ion exchanging polymeric resin within the treatment zone to remove *contamination comprising Al* from the Fischer-Tropsch derived hydrocarbon. In contrast, Glass discloses a Fischer-Tropsch synthesis with an *iron catalyst* with results in iron carbonyl impurities present in the hydrocarbon product and Glass discloses a process for removing these *iron carbonyl impurities* from the Fischer Tropsch hydrocarbon product. As such, it is respectfully submitted that the presently claimed process comprising using a catalyst comprising cobalt and extracting Al contamination is significantly different than the process of Glass.

Applicants respectfully submit that the Fischer-Tropsch reaction conditions, including the catalyst, affect the product composition and affect any contamination that may be present in the product and may need to be removed. Accordingly, Applicants respectfully submit that it would not be obvious to one of skill in the art to use the purification methods of Glass (i.e., purification methods to remove iron carbonyl impurities from a hydrocarbon product produced using an iron

catalyst) to remove Al contamination from a hydrocarbon product produced using a cobalt catalyst.

Therefore, it is respectfully submitted that in no way does Glass disclose or suggest the presently claimed method for removing contamination from a Fischer-Tropsch derived hydrocarbon stream as recited in claims 17 and 18.

Accordingly, for at least the above described reasons, withdrawal of this rejection under 35 U.S.C. § 103(a) is respectfully requested.

Claim 19 stands rejected under 35 U.S.C. § 103(a) as allegedly obvious over Glass in view of purportedly admitted prior art. Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed. Claim 19 depends on claim 1 and further limits claim 1 by including a filtering step.

As described above, Glass discloses conducting a Fischer-Tropsch synthesis with an iron catalyst with results in the iron carbonyl impurities present in the product and Glass discloses a method for removal of these iron carbonyl impurities from the product.

As described above, Applicants respectfully submit that the presently claimed process comprising using a catalyst comprising cobalt and extracting Al contamination is significantly different than the process of Glass. Applicants respectfully submit that the Fischer-Tropsch reaction conditions, including the catalyst, affect the product composition and affect any contamination that may be present in the product and may need to be removed. Accordingly, Applicants respectfully submit that it would not be obvious to one of skill in the art to use the purification methods of Glass (i.e., purification methods to remove iron carbonyl impurities from a hydrocarbon product produced using an iron catalyst) to remove Al contamination from a hydrocarbon product produced using a cobalt catalyst.

Therefore, it is respectfully submitted that in no way does Glass disclose or suggest the presently claimed method for removing contamination from a Fischer-Tropsch derived hydrocarbon stream as recited in claim 19.

Accordingly, for at least the above described reasons, withdrawal of this rejection under 35 U.S.C. § 103(a) is respectfully requested.

Claims 20-22 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over Glass in view of U.S. Patent No. 2,651,655 ("Loughran"). Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed.

As described above, Glass discloses conducting a Fischer-Tropsch synthesis with an iron catalyst with results in the iron carbonyl impurities present in the product and Glass discloses a method for removal of these iron carbonyl impurities from the product.

Loughran relates to the treatment of hydrocarbons to produce purified paraffin wax. Loughran is cited as disclosing a distillation step.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143.

As described above, Applicants respectfully submit that the presently claimed process is significantly different than the process of Glass. Applicants respectfully submit that even if there were some suggestion or motivation to combine Glass and Loughran and a reasonable expectation of success, Glass and Loughran, even when combined, do not disclose or suggest all the present claim limitations. Applicants respectfully submit that even if combined, Glass in view of Loughran does not disclose or suggest the presently claimed method for removing contamination from a Fischer-Tropsch derived hydrocarbon stream. Applicants respectfully submit that even if combined, Cain in view of Moore does not disclose or suggest conducting a Fischer-Tropsch process using a *catalyst comprising cobalt* to produce a Fischer-Tropsch derived hydrocarbon stream and contacting the Fischer-Tropsch derived hydrocarbon stream with an ion exchange medium comprising a crosslinked, ion exchanging polymeric resin within the treatment zone to remove *contamination comprising Al* from the Fischer-Tropsch derived hydrocarbon. It is respectfully submitted that the presently claimed process comprising using a catalyst comprising cobalt and extracting Al contamination is significantly different than the process of Glass. Applicants respectfully submit that the Fischer-Tropsch reaction conditions, including the catalyst, affect the product composition and affect any contamination that may be

present and may need to be removed. Accordingly, Applicants respectfully submit that it would not be obvious to one of skill in the art to use the purification methods of Glass (i.e., purification methods to remove iron carbonyl impurities from a hydrocarbon product produced using an iron catalyst) to remove Al contamination from a hydrocarbon product produced using a cobalt catalyst.

Therefore, Applicants respectfully submit that even if there were some suggestion or motivation to combine Glass and Loughran and a reasonable expectation of success, Glass and Loughran, even when combined, do not disclose or suggest the presently claimed method for removing contamination from a Fischer-Tropsch derived hydrocarbon stream

Accordingly, for at least the above described reasons, withdrawal of this rejection under 35 U.S.C. § 103(a) is respectfully requested.

Claim 23 stands rejected under 35 U.S.C. § 103(a) as allegedly obvious over Glass in view of Loughran and allegedly admitted prior art. Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed.

As described above, Glass discloses conducting a Fischer-Tropsch synthesis with an iron catalyst with results in the iron carbonyl impurities present in the product and Glass discloses a method for removal of these iron carbonyl impurities from the product.

Loughran relates to the treatment of hydrocarbons to produce purified paraffin wax. Loughran is cited as disclosing a distillation step.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143.

As described above, Applicants respectfully submit that the presently claimed process is significantly different than the process of Glass. Applicants respectfully submit that even if there were some suggestion or motivation to combine Glass, Loughran, and conventional filtering techniques and a reasonable expectation of success, this combination does not disclose or suggest

all the present claim limitations. Applicants respectfully submit that even if Glass is combined with Loughran, and conventional filtering techniques, the combination does not disclose or suggest the presently claimed method for removing contamination from a Fischer-Tropsch derived hydrocarbon stream. Applicants respectfully submit that the combination does not disclose or suggest passing a syngas to a Fischer-Tropsch reactor employing a *cobalt catalyst* to produce a Fischer-Tropsch derived hydrocarbon stream and contacting the filtered Fischer-Tropsch derived hydrocarbon stream with an ion exchange medium comprising a crosslinked, ion exchanging polymeric resin within the treatment zone to remove *contamination comprising Al* from the filtered Fischer-Tropsch derived hydrocarbon. As described above, it is respectfully submitted that the presently claimed process comprising using a catalyst comprising cobalt and extracting Al contamination is significantly different than the process of Glass. Applicants respectfully submit that they have admitted no prior art that would supplement the many above-noted deficiencies of Glass.

Therefore, Applicants respectfully submit that even if there were some suggestion or motivation to make the combination as set forth in the Office Action and a reasonable expectation of success, the combination does not disclose or suggest the presently claimed method for removing contamination from a Fischer-Tropsch derived hydrocarbon stream

Accordingly, for at least the above described reasons, withdrawal of this rejection under 35 U.S.C. § 103(a) is respectfully requested.

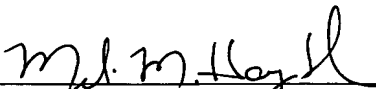
Conclusion

Without conceding the propriety of the rejections, the claims have been amended, as provided above, to even more clearly recite and distinctly claim particularly preferred embodiments of Applicants' invention and to pursue an early allowance. For the reasons noted above, the art of record does not disclose or suggest the inventive concept of the present invention as defined by the claims.

In view of the foregoing amendment and remarks, reconsideration of the claims and allowance of the subject application is earnestly solicited. In the event that there are any questions relating to this application, it would be appreciated if the Examiner would telephone

the undersigned attorney concerning such questions so that prosecution of this application may be expedited.

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